

What is claimed is:

1. An optical connector module for connecting between a transmission/reception source circuit and an optical fiber, comprising:

an optical transmission/reception wafer including an optical transmission/reception section that is formed such that an optical transmission/reception end thereof is disposed at a predetermined location and is connected to the transmission/reception source circuit, and a first V-groove formed at a location preset in association with said optical transmission/reception end of said optical transmission/reception section such that said first V-groove has a V-shaped cross-section;

an optical waveguide-side connector including an optical waveguide wafer, and a connector guide pin, said optical waveguide wafer including an optical waveguide formed such that said optical waveguide has an optical transmission/reception end face thereof disposed on one end face of said optical waveguide wafer in association with said optical transmission/reception end of said optical transmission/reception section, and an optical connection end face thereof disposed on the other end face of said optical waveguide wafer, and that said optical waveguide provides optical connection between said optical transmission/reception end face and said optical connection end face, and a second V-groove formed in said optical waveguide wafer at a location corresponding in position to said first V-groove of said optical transmission/reception wafer, such that

said second V-groove has a V-shaped cross-section, said connector guide pin being fixedly held in said optical waveguide wafer such that said connector guide pin protrudes from the other end face of said optical waveguide wafer by a preset length;

an wafer registration guide pin inserted between said first V-groove of said optical transmission/reception wafer and said second V-groove of said optical waveguide wafer, and sandwiched by said first V-groove of said optical transmission/reception wafer and said second V-groove of said optical waveguide wafer, for positioning and fixing said wafers, when said wafers are brought close to each other for interconnection, thereby registering said optical transmission/reception end of said optical transmission/reception section and said optical transmission/reception end face of said optical waveguide, of said wafers, with each other;

a wafer interconnecting/fixing member for connecting and fixedly holding said optical transmission/reception wafer and said optical waveguide wafer; and

an optical fiber-side connector for fixedly holding said optical fiber such that an optical connection end face of said optical fiber is disposed on one end face thereof, said optical fiber-side connector having a guide pin-inserting hole formed at a location corresponding in position to said connector guide pin of said optical waveguide-side connector, said optical fiber-side connector being connected to said optical waveguide-side connector by inserting said

connector guide pin into said guide pin-inserting hole, thereby connecting said optical connection end face of said optical fiber to said optical connection end face of said optical waveguide.

2. An optical connector module according to claim 1, wherein said second V-groove of said optical waveguide-side connector comprises a connector guide pin-receiving V-groove formed in said optical waveguide wafer for receiving said connector guide pin to fixedly hold said connector guide pin therein, and a wafer registration guide pin-receiving V-groove formed in said optical waveguide wafer at a location along an extension line from said connector guide pin-receiving V-groove, integrally with said connector guide pin-receiving V-groove, for receiving said wafer registration guide pin to fixedly hold said wafer registration guide pin therein.

3. An optical connector module according to claim 2, wherein said connector guide pin of said optical waveguide-side connector and said wafer registration guide pin are integrally formed with each other, and disposed and fixedly held in said second V-groove of said optical waveguide wafer.

4. An optical connector module according to claim 1, wherein said optical transmission/reception wafer has a first orthogonal V-groove formed in a direction orthogonal to said first V-groove, for wafer registration, and said optical waveguide-side connector has a second orthogonal V-groove formed therein at a location corresponding in position to said first orthogonal V-groove of said optical transmission/

reception wafer, for wafer registration, and wherein said wafer registration guide pin comprises a first wafer registration guide pin sandwiched between said first V-groove and said second V-groove, and a second wafer registration guide pin sandwiched between said first orthogonal V-groove and said second orthogonal V-groove.

5. An optical connector module according to claim 2, wherein said optical transmission/reception wafer has a first orthogonal V-groove formed in a direction orthogonal to said first V-groove, for wafer registration, and said optical waveguide-side connector has a second orthogonal V-groove formed therein at a location corresponding in position to said first orthogonal V-groove of said optical transmission/reception wafer, for wafer registration, and wherein said wafer registration guide pin comprises a first wafer registration guide pin sandwiched between said first V-groove and said wafer registration guide pin-receiving V-groove, and a second wafer registration guide pin sandwiched between said first orthogonal V-groove and said second orthogonal V-groove.

6. An optical connector module according to claim 5, wherein said connector guide pin of said optical waveguide-side connector and said wafer registration guide pin are integrally formed with each other, and disposed and fixedly held in said second V-groove of said optical waveguide wafer.

7. An optical connector module according to claim 5, wherein said first wafer registration guide pin and said second wafer registration guide pin are

configured to have different diameters, and said first and second V-grooves and said first and second orthogonal V-grooves are configured to have different dimensions according to the respective different diameters of said first wafer registration guide pin and said second wafer registration guide pin.

8. An optical connector module according to claim 1, wherein said second V-groove comprises two second V-grooves formed on both sides of said optical waveguide first V-groove, respectively, said first V-groove comprising two first V-grooves formed in association with said two second V-grooves, respectively, said connector guide pin comprising two connector guide pins, and said wafer registration guide pin comprising two wafer registration guide pins.